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AUTOMOTIVE AND TRACTOR INDUSTRY

NEW ZIL-133GYA TRUCK TRACTOR DESCRIBED

Moscow ZA RULEM in Russian No 11, Nov 79 signed to press 28 Sep 79 pp 12-13

[Article by V. Levin, chief of the instructions and catalogs bureau at the ZIL (Moscow Automobile Plant imeni I. A. Likhachev): "ZIL Diesels"]

[Text] Specifications for the ZIL-133GYa (in parentheses, data for the ZIL-133VYa, where different):

General data:

Equipped weight -- 7,790 (7,100) kg;
Load capacity (hitch load) -- 10,000 (9,500) kg;
Trailer (semitrailer) load capacity -- 8,000 (18,500) kg;
Wheel formula -- 6x4;
Maximum speed, tractor alone -- 85 km/hr; tractor and trailer
-- 80 km/hr;
Reference fuel expenditure -- 30 liters/100 km;
Fuel tank capacity -- 170 (340) liters.

Dimensions:

Length -- 9,250 (7,050) mm;
Width -- 2,500 (2,435) mm;
Height -- 2,405 mm;
Load height (hitch height) -- 1,380 mm;
Base from front to middle axle -- 4,610 (3,700) mm; from
middle to rear [dummy] axle -- 1,400 mm;
Track -- 1,835 mm for front wheels; 1,850 mm for rear wheels;
Road clearance -- 235 mm.

Engine:

Number of cylinders -- 8;
Compression ratio -- 17.0:1;
Displacement -- 10,850 cc;
Power -- 210 hp at 2,600 rpm;
Maximum torque -- 65 kg-force/meter at 1,400 to 1,700 rpm.

Drive train: Clutch -- dry, two-disc, hydraulic drive and air assist;
Transmission -- 10-speed, with range shifter and air-assisted
shifting preselection in the ranger;
Primary transmission -- hypoid, 6.83:1 ratio;
Interaxle differential -- interlocked.

Steering:

Manual, air-assisted.

Brakes:

Four separate systems:

Activating -- separate drum air brakes on each wheel;
Parking -- spring-loaded, mechanical to rear-axle brakes;
Auxiliary -- baffle in the release system;
Reserve -- spring-loaded.

Underframe:

Front wheel suspension -- dependent on lengthwise semielliptical
leaf springs and telescoping shock absorbers;
Rear wheel suspension -- dependent, balanced on lengthwise semi-
elliptical leaf springs with torsion rods;
Tires -- 260-508R;
Frame -- side-beam type, stamped, welded.

Increasing the production of large vehicles with diesel engines is one of the most important tasks our automotive industry is resolving in the 10th and 11th five-year plans. The six branch enterprises already producing such vehicles (BelAZ, KamAZ, KRAZ, MAZ, MoAZ and UralAZ) have now been joined by the plant imeni I. A. Likhachev, whose collective has assumed a socialist obligation to master the manufacture of diesel trucks this year. The new ZIL-133GYa and ZIL-133VYa began leaving the main conveyor the third quarter of this year. Plant workers have thus met their obligation and have greeted the 62nd anniversary of the October Revolution by producing diesel trucks.

The new three-axle models (ZIL-133GYa straight truck and ZIL-133VYa tractor with hitch) developed from the ZIL-133G1, itself in production since 1975, significantly surpass it in many technical and economic indicators. They are intended for use on roads permitting axle loads of up to 10 tons. They can be operated briefly on dirt roads at any times of year except for bad periods in the spring and fall and when there are snowdrifts.

The ZIL-133GYa has a cab that seats three and a metal bed with wooden sides, as well as a detachable metal frame and tarpaulin. The vehicle is intended for use with a trailer, that is, it is considered a tractor. The ZIL-133GYa modification, a tractor with hitch, is intended for hauling a semitrailer with a platform with sides or a truck semitrailer. Both vehicles are suitable for operation in every climatic zone with outside temperatures of +40 to -40°C.

The ZIL-133GYa can briefly be described as a ZIL-133G1 (ZA RULEM, No 8, 1976) with a diesel engine, clutch, transmission and braking system from the KamAZ vehicles (ZA RULEM, No 3, 1976) and the additional subassemblies and parts

necessary to install them. In particular, installation of the longer KamAZ diesel engine (longer than the ZIL-130 engine) required changing the engine compartment. As a result, the vehicle received a new radiator shell, with the middle portion moved forward and with a longer cowl.

Use of a diesel, rather than a carburetor-type engine and use of a 10-speed transmission instead of the five-speed one used previously enabled us to make the vehicle more economical -- the ZIL-133GYa fuel expenditure is 30 liters of diesel fuel per 100 km, as against 36 liters/100 km of A-76 gasoline for the ZIL-133G1. Moreover, thanks to a 40-percent more powerful engine, the new truck can haul an eight-ton trailer. The ZIL-133G1 could not, and it also lacked a drawbar. Incidentally, this same improvement made it possible to create a hitch-type tractor based on the ZIL-133GYa. Thus, both the vehicles mastered by our plant can haul freight in truck-trailer combinations, which is economically most efficient.

Evaluating the ZIL-133GYa and ZIL-133VYa from a technical point of view, it must be said that these are the first series-produced models the plant has produced which are equipped with diesel engines, air-assisted clutch drive, 10-speed transmissions with preselected range shifting, and four independent braking systems. Along with these unique subassemblies and units which distinguish the new vehicles from many foreign models, also note the rear drive axles with a hypoid primary transmission and interlocked differential.

Let's deal in somewhat greater detail with the individual subassemblies.

Driving such modern, heavy-duty vehicles as the ZIL-133GYa and ZIL-133VYa requires driver conditions which reduce tension and physical effort to a minimum. The controls, while of the traditional type, have been substantially modernized. This applies foremost to clutch and transmission operation.

Using compressed air from a built-in compressor, the clutch drive air booster reduces the clutch pedal effort to 20 kg-force, that is, nearly three-fold. The hydraulic drive acts as a link which simply transmits the force from the pedal to the pressure lever. When there is no air in the booster cylinder (which comprises a single unit with the hydraulic cylinder), the clutch is disengaged only when the liquid presses on the cylinder piston and the pedal pressure increases to 60 kg-force.

The transmission consists of a basic five-gear box and forward reducer-divider [range shifter] which doubles the number of gears and enables us to obtain gear ratios close to the average value of two neighboring stages of the main gearbox, thanks to which the speed of the vehicle increases at reducing gear and the torque decreases approximately 1.22-fold. Each position of the gearshift lever in the main gearbox corresponds to two gearings of the divider, each of which can be engaged by shifting the gearshift lever located at the end of the shift lever. By shifting it to position "H" (higher range), the driver obtains a higher vehicle speed, but the torque

being supplied to the drive wheels diminishes correspondingly. In order to increase the torque, the gearshift lever must be shifted to position "L" (lower range).

The divider has a pneumatic drive to change gears. One interesting feature of it is that the "on" valve of the servo mechanism is linked by the air-booster push rod to the clutch drive system. The driver can preselect (that is, choose) shifting the appropriate gear in the divider without using the clutch or accelerator pedals and then engage it at the proper moment by simply pressing the clutch pedal. It would be hard to overestimate the convenience of this device when traveling terrain in which road conditions frequently change.

The drive axles of the ZIL-133GYa and ZIL-133VYa are similar to those of the ZIL-133G1 (ZA RULEM, No 8, 1976). The differential built into the housing of the middle drive axle distributes the torque equally between the two drive axles and permits a reduction in fuel expenditure and tire wear when traveling on surfaced roads.

This differential can be interlocked to improve traction when traveling on muddy, wet, icy or snow-drifted roads. The interlocking is controlled by an air chamber: a manually operated stopcock in the cab controls the flow of compressed air to it.

Braking is similar to that used in the KamAZ's and consists of four systems.

The actuating system is the main one. In it, the brakes are air-powered by a double-flow system, the wheels on the front and the two rear axles being braked separately. The brakes are controlled by a pedal in the driver's cab, the pedal being linked by levers and linkages to a two-section brake valve.

The parking-brake system ensures that the vehicle will not move on a horizontal road or an incline. The brakes are mechanically powered from brake chambers with spring-loaded energy accumulators installed on the rear axles. When the vehicle is in motion, the springs are compressed by air pressure. When the pressure drops, the springs activate the braking mechanisms at the wheels. The system is switched on by a brake valve (to the right of the driver's seat).

The auxiliary system slows the vehicle on inclines and mountain roads and operates using engine compression (braking using the motor) by creating counter-pressure by means of a baffle in the engine exhaust system. It significantly reduces the load on the brake drums and shoes and thus prolongs their service life. The system's air drive is activated by a button-valve on the cab floor.

The reserve system ensures that the vehicle will stop if the activating system partially or completely malfunctions. When it is switched on, the

pressure of the air being compressed by the power springs of the energy accumulators changes and thus regulates the braking force. The parking brake system valve controls it. When pressure in the parking system drops due to an accident, the energy accumulator springs are triggered and the vehicle is slowed.

Lights and audio signals monitor the status of all braking systems.

The equipping of ZIL-133GYa and ZIL-133VYa vehicles with the units and systems indicated, along with power steering, an electric heater, modern audio and light signals and numerous instruments, makes the driver's work significantly easier and facilitates improving driving safety.

The new family of ZIL trucks continues the glorious traditions of its developers in the areas of design, manufacturing technology and operation. Their use in the national economy will bring a substantial savings of funds and will simultaneously increase shipment efficiency.

Under an agreement reached by the leadership of the ZIL and KamAZ production associations, warranty and routine maintenance on the power train (engine, clutch and transmission) of the ZIL-133GYa and ZIL-133VYa will be done at service centers subordinate to the Kama Heavy-Duty Vehicle Production Complex.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

RESULTS OF BUILDING PROFSOYUZ HOSPITALS

Moscow TRUD in Russian 28 Oct 79 p 2

[Article: "Profsoyuz Hospital Construction Projects"]

[Text] The fourth year of the current five-year plan is a tough test for the builders of profsoyuz (trade union) hospitals. They have to spend 380 million rubles and complete sanatorium and resort establishments for medical treatment and recreation to accommodate 30,000 persons. It is not an easy assignment. And the scale is especially substantial now, with three-quarters of 1979 already past and the time not far off when results are to be summarized. The contracting organizations are the decisive factor here.

How the main contracting organizations of the ministries and departments performed in the first nine months of the current year on the most important trade union projects

	Percentage of fulfillment of annual plan
USSR MINISTRY OF INDUSTRIAL CONSTRUCTION	58.7
Including:	
Main Krasnodar Industrial Construction Administration	57.8
Main Northwestern Construction Administration	43.0
Main Arkhangel'sk Construction Administration	43.3
Main Middle Volga Construction Administration	58.8
Main Lower Volga Construction Administration	69.1
Main Western Urals Construction Administration	38.6
Main Tyumen' Industrial Construction Administration	17.6
Main Sochi Special Construction Administration	76.7
Main Caucasian Mineral Resort Construction Administration	48.2
Main Eastern Siberian Construction Administration	47.8
Dagestan Administration	28.5
Ukrainian Ministry of Industrial Construction	55.4
Belorussian Ministry of Industrial Construction	51.0
Armenian Ministry of Industrial Construction	75.5

USSR MINISTRY OF CONSTRUCTION	63.0
Including:	
Main Volga-Vyatka Construction Administration	35.9
Main Novosibirsk Construction Administration	80.0
Main Vladivostok Construction Administration	46.5
Main Ivanovo Construction Administration	27.4
Tambov Administration	40.7
Kalinin Administration	54.9
Smolensk Administration	83.6
Chuvash Administration	50.0
Uzbek Ministry of Construction	106.8
Georgian Ministry of Construction	56.3
Lithuanian Ministry of Construction	56.9
Moldavian Ministry of Construction	90.1
Latvian Ministry of Construction	60.5
Kirgiz Ministry of Construction	69.7
Tadzhik Ministry of Construction	65.2
Turkmen Ministry of Construction	48.2
USSR MINISTRY OF CONSTRUCTION OF HEAVY INDUSTRY ENTERPRISES	61.0
Including:	
Main Northwest Administration of Construction of Heavy Industry Enterprises	60.0
Main Central Urals Construction Administration	65.0
Main Southern Urals Construction Administration	76.0
Main Kuzbass Construction Administration	21.0
Main Krasnoyarsk Construction Administration	38.0
Main Far Eastern Construction Administration	52.0
Ukrainian Ministry of Construction of Heavy Enterprises	56.0
Kazakh Ministry of Construction of Heavy Industry Enterprises	51.0
USSR MINISTRY OF RURAL CONSTRUCTION	37.0
Including:	
Main Northwestern Rural Construction Administration	44.3
Main Urals Rural Construction Administration	29.0
Main Central Chernozem Zone Rural Construction Administration	48.4
Main North Caucasus Rural Construction Administration	25.0
Belorussian Ministry of Rural Construction	46.8
Uzbek Ministry of Rural Construction	40.2
Kazakh Ministry of Rural Construction	32.2
Azerbaijan Minister of Rural Construction	78.8
Kirgiz Minister of Rural Construction	52.0
USSR MINISTRY OF POWER AND ELECTRIFICATION	39.0
USSR MINISTRY OF TRANSPORT CONSTRUCTION	62.3
Main Moscow City Administration for Housing and Civil Construction	79.9
Main Moscow City Soviet Industrial Construction Administration	79.9
Main Moscow Oblast Construction Administration	43.8
Main Leningrad Construction Administration	60.7

Some subunits of the contracting organizations have taken up their duties well aware of their responsibility, knowing that further expansion of the network of sanatoria, rest homes and vacation homes constitutes a part of the program of improving the people's well being as mapped out at the 25th CPSU Congress. Some collectives have already completed the year's construction-installation work program on profsoyuz program. These include the Uzbek Ministry of Construction, the Main Omsk Construction Administration, the Main North Caucasus Construction Administration, the Main Ul'yanovsk Construction Administration, and the Chechen-Ingush and Pskov territorial administrations.

The following are also successfully fulfilling the plan: Armenian Ministry of Industrial Construction, Moldavian Ministry of Construction, Azerbaijan Ministry of Rural Construction, Main Sochi Special Construction Administration, Main Novosibirsk Construction Administration, Main Southern Urals Construction Administration, Main Lipetsk Construction Administration, and Smolensk and Penza territorial construction administrations. But the leading collectives, unfortunately, cannot make up for the lag on most of the profsoyuz construction projects.

Not one of the construction ministries is fulfilling the plan. But it is more than just a matter of falling seriously behind schedule. All of them are performing badly compared with last year. In the first three quarters of this year, the USSR Ministry of Rural Construction has completed only 47 percent of the year's target compared with 76 percent last year. The respective figures for the USSR Ministry of Power and Electrification are 39 and 52 percent. The picture is almost the same in the reports of the USSR Ministry of Transport Construction--62.3 and 79 percent. The USSR Ministry of Construction has fallen behind: 63 and 67 percent. Neither has the USSR Ministry of Construction of Heavy Industry Enterprises managed to reach last year's level: 61 and 63 percent. Finally, although the USSR Ministry of Industrial Construction is almost at last year's level--58.7 versus 59 percent--even this figure is not very encouraging. In order to meet the target, its subunits will have to complete 40 percent of the year's plan in the final three months.

It has long been known that the concluding percentages are much higher. In the remaining days of the year it will be necessary to complete 80 percent of the start-up projects. Under any conditions, but especially in the concluding period, special importance attaches to the organization of the work on the projects, coordination of the activities of all the subcontracting organizations, concentration of material and labor resources. But this is just what is lacking, unfortunately, on the construction projects. As a result, there is the real threat that many hospitals under construction will not be turned over to the clients this year. These include Sanatorium imeni Gor'kiy in Kislovodsk and the Beregovoy Vacation Home in Pyatigorsk (the contractor is Main Caucasian Administration of Mineral Resort Construction, headed by V. Pugiyev); the vacation home at Truskavets Resort (Main L'vov Industrial Construction Administration, headed by Ya. Godysh); tourist hotels

and bases in Baranovichi (Belorussian Ministry of Industrial Construction, Minister I. Mozolyako), Aktyubinsk (Kazakh Ministry of Construction of Heavy Industry Enterprises, Minister N. Ol'kov), Usinskaya in Kubyshevskaya Oblast (Main Middle Volga Construction Administration, chief Yu. Nazarov).

This year the builders have repeatedly given assurances that they will spare no efforts to complete sanatoria for parents with children on time. But the promises and assurances of Main Moscow City Administration for Housing and Civil Construction Chief M. Kokhanenko and Main Far Eastern Construction Administration Head V. Peschanskiy, who are building the Svetlana in Moscow and the Zhemchuzhina Khingana in Khabarovskiy Kray, have not been backed up by deeds.

But these are not the only hospitals so fervently promised by many distinguished contractors at the start of the year. The heads of many construction collectives have made lavish promises and pledged to "make up for lost time," to fulfill and overfulfill targets. Now there is not much time until the end of the year, and on a number of projects there is still hope of gathering forces and reserves to complete the planned hospitals.

Why is it so easy for officials to make these promises and then not carry them out? Evidently it is because none of them have been brought to account. Successful completion of the plan is not just the builders' job. It is also the responsibility of the profsoyuz councils and committees and the profsoyuz resort administration councils.

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CSO: 1821

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

ARCHITECTURE, BUILDING IN SIBERIA, FAR EAST

Moscow IZVESTIYA in Russian 25 Sep 79 p 3

[Article by B. Petrov (Krasnoyarsk): "Housing Complex Being Planned"]

[Text] A plenum of the board of the USSR Architects' Union was held in Krasnoyarsk to discuss the role of architects in shaping the housing environment in cities of Siberia and the Far East. The opinion of the architects concerning several of the problems discussed at the plenum is summarized by our correspondent.

What do Soviet architects mean by housing environment? It includes your apartment and the building where it is located. But it also includes a courtyard with children's play areas, nearby stores, a school, child care facilities, sports facilities for young people, a cozy little park for oldsters, a housing and utilities office, and a public order station. Finally, it includes convenient transport to the work place and administrative-cultural centers.

The integrated concept of a full-fledged housing environment, centered on the individual with his various life connections, is the accomplishment of the Soviet school of city planning. Today our architects have set themselves the task of organizing this kind of housing.

In the case of Siberia, it is of particular architectural interest. The matter goes beyond the specifics of Siberia's natural conditions. It is difficult to compare any other region with it for the scale and pace of construction.

Here indeed is a boundless field of endeavor for the architect! Frequently starting literally from the first peg, to be in on the birth of a new settlement, to invest one's talent and character into the character and shape of the new city, to help its inhabitants get the most favorable working, living, and leisure conditions and thereby help to resolve a vital state problem--that of attracting and keeping cadres in the eastern regions of the country--what could be more interesting, responsible, and gratifying?

Accomplishments have undoubtedly been made in Siberian city planning. The fact is, however, that the architect tends to judge today's reality from the standpoint of tomorrow. From that standpoint, the state of affairs today gives rise to considerable concern and sharp questions.

One of the first problems is that of taking account of the characteristics of Siberia's natural conditions.

For example, standard projects for kindergartens call for a layout of block units with built-in passages. This is done for the sake of ventilation. School buildings call for inside courtyards. But in Siberia, with its winds, snows, and frosts, such a layout leads to snowdrifts, "built-in" drafts, and 15 to 20 percent additional heat consumption. Out of 22 standard projects for child care facilities only six are designed with regard to geographic specifics (but some of them are designed only for frozen ground and others are designed only on the basis of seismic considerations). Out of 11 standard projects for school buildings, only one is designed for frozen ground. Out of 16 standard projects for department stores, not one is of "Siberian" design.

Clearly, it is essential to perfect the system of standard project planning for this geographic zone. But a particular difficulty lies in the fact that the land from the Ural to the Pacific is so vast that by itself it consists of a number of regions that are completely different from one another. The designing of standard projects for this entire vast territory is basically the responsibility of the Leningrad project-planning institutions and the Siberian Zonal Scientific-Research and Project-Planning Experimental Institute (SibNIIEP) in Novosibirsk. Specialists believe that it is now necessary to create two new institutions of this profile—one for eastern Siberia and one for the Far East.

With regard to city planning practice, it must be noted that the integration principle is frequently violated in Siberian cities. This is especially manifest in the delayed construction of social-cultural facilities. In Omsk, for example, if we go by the norms that are stipulated in terms of the amount of housing inventory, only 60 percent of the necessary child care facilities have been built and even fewer schools. In Districts 6 and 8 of Yuzhno-Sakhalinsk there are enough stores and consumer service facilities.

What is the reason for this situation? It is due to the customary practice of planning and financing. For example, the USSR Ministry of Electrical Equipment Industry is building a whole complex of plants in the old Siberian town of Minusinsk. According to calculations, just to start up the first phase requires the building of 77 million rubles worth of housing. But the ministry deemed it possible to leave it at 44 million, excluding from construction plans all schools except one, all health care facilities, clubs, and libraries, and trade and public food service enterprises. A second serious hindrance to the proper shaping of housing complexes is the scattering of housing construction over many sites of the city and the fact that they belong to so many different departments.

What can be done to raise advanced city planning concepts consistent with the fundamental advantages of the socialist system of management to the category of a state principle and a planning normative? After all, the CPSU CC and USSR Council of Ministers decree "Improving Planning and Strengthening the Influence of the Economic Mechanism on Improving Production Effectiveness and Work Quality" names among the most vital tasks that of finding integrated solutions to economic and social problems!

One answer to this question, it was noted at the plenum, would be to introduce into the practice of planning housing construction the category of the "housing complex" (or the "obligatory turnover complex"), which would be to some extent analogous to the concept "start-up complex" in industrial construction. This would be in order to plan not individual buildings or so many square meters but a unified housing environment organism--an integral whole, an independent line in the plan.

Converting to such a system of planning would create conditions for concentrating the forces, funds, and interests of the city authorities and parties concerned on a single construction site. This would facilitate the pooling of funds and determination of the head client.

Architectural drabness of new housing districts... So much has been written and spoken about this in recent years! And each word of reproach strikes pain into the hearts of architects and designers. Yes, today an industrial construction conveyor is in operation. But does this mean that the architect has to go along with it? A good answer was given by the director of the Siberian Zonal Scientific-Project Planning Institute, Candidate of Architecture Yu. Kuzin. The secret to eliminating the drabness, in his opinion, is for architecture to understand the essence and possibilities of the basis of prefabricated building construction, the ability to use it as a tool to realize your ideas.

There was animated discussion at the plenum of the accomplishments of the Krasnoyarsk people in mastering housing project design Series 111-97, which was worked out, incidentally, in the workshops of SibNIIEP. The design is based on what is known as the block-section method, which makes it possible to vary in a broad range the height, length, and configuration of the buildings. In several subdivisions of Krasnoyarsk you can see how this method has worked out. This success has resulted from the harmonious and diligent joint efforts of architects, builders, and soviet workers with the full support of the city authorities.

The usual standard housing construction combine (DSK) is designed to produce about 400 separate items. Of this number it is possible to successfully turn out five to six block-sections of one series to erect buildings of five and nine stories, for example. What happens if one more series ("the latest one") is placed in production? The number of separate items remains the same, and it is possible to vary within the system. Granted, a large city may have more than one DSK, but how about the medium-sized city, for that's what most new Siberian projects are.

So much funding was allocated to the construction of Nizhnevartovsk that it should have rivaled in beauty other architectural capitals. But it didn't work out that way. Nizhnevartovsk has no DSK's of its own, and construction designs were brought in from various cities. As a result, buildings of various cities grew up, yet they were hardly distinguished from one another. So it is not just a matter of the number of series! It is a matter of the number of block-sections being produced and the variety of finishing touches--the architectural accoutrements of the buildings: loggias, balconies, parapets, cornices, railings, and so on. But these are what the building-construction combines are not producing in enough quantities.

And what if a city has only one DSK? Does that mean that we cannot do away with drabness under conditions of industrial building construction? Does it mean that not every city needs its own DSK? Can it be that under present conditions it is advisable to concentrate in some large several building construction combines to produce for the whole zone residential building designs of several series with an adequate assortment of accoutrements and finishing touches? A city of builders, so to speak. And why not? After all, we do not consider it advisable for each city to have its own small plant producing vehicles for local use. Here is something to think about, something to consider.

Under all conditions, despite all difficulties, plenum participants noted, it is time to get the DSK's to turn out not just buildings as such but to turn them over complete--with benches, curbs, paved sidewalks, and equipped courtyard areas. Since industrial methods of building construction are ubiquitous, who should be concerned with these essential "small architectural forms" if not the construction industry itself? In the process of redesigning the DSK's, their structure should be made to include shops or sections for finishing work.

The plenum showed that the city designers of the eastern regions of our country face many problems. Some of them are being resolved successfully, while others still require hard work on the part of architects, scientists, and economic officials. Our country has all the possibilities for creating a housing environment that is uniformly beneficial both to people and the environment.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

SIBERIAN HOUSING CONSTRUCTION

Moscow SEL'SKAYA ZHIZN' in Russian 29 Aug 79 p 2

[Article by N. Minakov, deputy chief, production administration of agriculture, Novosibirskaya Oblast Executive Committee (Novosibirskaya Oblast): "Siberian Home. Let's Speed Up the House-Warming!"]

[Text] Some 764,000 square meters of housing went into operation in the villages of Novosibirskaya Oblast in the Eighth Five-Year Plan, 834,000 in the Ninth, and 612,000 in just three years of the Tenth—including 250,000 last year alone. This is 172 percent of the plan. Now the pace of housing construction is faster than the plan calls for. A comparison of the figures not only testifies to the growing attention of the state to housing construction in Siberian villages but also points up the search for new opportunities to expand this vital work.

On the kolkhozes of Vengerovskiy Rayon, for example, the year's plan called for building 432 square meters of housing; in fact, 5,700 square meters were completed. The farms of Severnyy, Kuybyshevskiy, Toguchinskiy, Kupinskiy, and other rayons are considerably overfulfilling the housing construction plan. The new residential buildings, as a rule, include running water and central heating. The new residents are given their own farm plots and structures to keep livestock. The central districts of Blyudchanskiy, Stepnoy, Gutovskiy, Kochkovskiy, and Barabinskiy sovkhoses and Kolkhoz imeni Uritskiy in Suzunskiy Rayon and many others are well-appointed settlements.

A particular feature of recent years is the expanded scale of individual construction. This year, for example, plans call for putting into operation more than 300 one-family homes involving the funds of kolkhoz members and workers. The farms are helping the individual builders with transport and materials. In implementation of the CPSU CC and USSR Council of Ministers decree "Further Development of Construction of Individual Homes and Retention of Cadres in the Villages," plans call for specific measures to improve these activities. Real help is provided by instructions concerning procedures for implementing this decree, issued by the USSR Ministry of Agriculture, Ministry of Finance, Ministry of Justice, and Gosbank. We are convinced that converting the construction of individual homes to the

contract method, using large blocks and panels, will make it possible to step up the pace and improve work quality. So far, however, this construction is being carried out chiefly by the economic method [khozyaystvennyy sposob]. Last year, for example, of the total amount of housing built on the sovkhoses and kolkhoses, only 15 percent was done by contract organizations.

If under such circumstances it is possible to substantially overfulfill plans, this is primarily due to the creation of the outfit's own production base. The Stroydetal' Trust of the Agricultural Administration has brick plants, wood working shops, and flooring and nail production shops. It is arranging to produce cabinet items. The trust has a gravel pit. The procurement and shipping of sand to the farms is centralized. More than 70 farms in the oblast have their own seasonal brick plants which supply almost all their wall material needs.

Timber materials are supplied in a well organized fashion. Excellent help in this matter is provided by the inter-kolkhoz timber establishments. They not only procure timber through planned logging and clearing in their own forests but also organize timber processing: They prepare lumber and flooring. The kolkhoses and sovkhoses stock up on most building materials in the winter and spring, when it is possible to get more manpower and transport facilities for these purposes.

Considerable help in procuring materials is provided by the sponsoring industrial organizations of the cities. Many farms have construction shops and lumber yards which begin in the winter to make individual components for buildings and saw lumber. By the beginning of the construction season most of the farms, as a rule, have procured amounts of construction materials necessary to ensure planned completion.

The oblast administration has drawn up specific measures for developing its own base for the production of local materials. Next year, for example, will see the construction of two new brick plants and the expansion of an existing one. When they go into operation it will be possible to increase brick production by 60 million per year. Measures are being taken to increase the production of cabinet items. The present base makes it possible to build between 230,000 and 250,000 square meters of housing per year by the economic method. Implementation of the planned measures will make it possible to raise this figure to 350,000.

At the same time, there are substantial difficulties involved in the production of local materials. At present the number of existing brick plants is declining, and their productivity is also going down. The main reason is worn equipment. In the past five years the kolkhoses and sovkhoses of the oblast have not received a single brick press. Everyone can see that it is advantageous for the sovkhoses and kolkhoses to make bricks in their own plants. For example, Barabinskiy Sovkhoz used to make more than 1 million bricks per year. The sovkhos not only met its own needs but also helped others. Under such circumstances, it is clearly premature to halt the production of brick-making equipment. Not enough wood processing equipment is being made, especially saw frames.

About the same amount of work is being done by the economic method in the oblast as in the larger construction organizations of Novosibirsk. But those in the city have the necessary amount of hoisting and transport equipment and are constantly replenishing this inventory. But the economic method used in the village continues to be undersupplied.

Those who are energetically involved in housing construction also face definite difficulties with financing. If the allocated funds are spent before July, then in the second half year sources of financing dry up. Every year the RSFSR Ministry of Agriculture allocates additional capital investments, but this comes at the end of the year. It seems to us that it is better to change the system of planning capital investments. It would be well in the second half of the year to revise plans monthly after the accounting, reducing capital investments for those who have not completed them and increasing them for those who are moving ahead.

Even if the proportion of contract organizations in housing construction is enlarged, all farms ought to have construction crews. In this connection, much needs to be decided with regard to upgrading the qualifications of the line engineering-technical personnel on the kolkhozes and sovkhoses. It is planned to open a construction technicum in the oblast to train rural young people to be capable organizers of construction in the villages.

A special concern is that of improving project planning. It is a good thing, of course, that all the central districts of the kolkhozes and sovkhoses in the oblast have town layout and design projects. They resolve many problems involved in the layout of the center and the placement of residential and production zones. Nevertheless, the present state of documentation is not resolving all problems. Utility systems have been worked out only schematically, no studies have been made with regard to layout, road building, and landscaping. For some reason, surveying to tie in to local conditions is often carried out without taking proper account of what has already been built and what is planned in the future. In our opinion, when issuing the layout and design project plan it is also necessary to issue a plan of the detailed layout of a particular part to cover development over the course of five to six years. This would make it possible to solve problems in a more rational manner.

This requires in addition, of course, acceptable project plans for the housing itself. So far, unfortunately, there are no good residential building project plans in the oblast based on Siberian conditions and fully satisfying to the building planners. Yet there is a division of the USSR Architects' Union in Novosibirsk. Unfortunately, it has exerted no practical influence to improve village development. The work of the small groups of specialists in the Siberian Zonal Scientific-Research Institute of Experimental Project-Planning in Rural Construction and the Oblast Kolkhoz Project Planning Institute is confined chiefly to drawing up layout sketches. Nor is there much return on the efforts of the Siberian Zonal Scientific-Research Institute of Experimental Project-Planning. RSFSR Gosstroy and the

State Committee for Civil Construction ought to look deeply into the situation and finally take steps to get out of this stagnation.

The measures that have been taken by the agricultural agencies to expand housing construction in the villages using the resources of the farms themselves by no means relieves the contracting organizations of responsibility for carrying out this work. However, they are not making any special effort to develop the housing construction base. Both the Novosibirskaya Oblast Rural Construction Administration and the Oblast Interkolkhoz Construction Association are seriously behind the times in this regard. In our opinion, housing construction here should be made a separate sector, and cooperative deliveries should be widely developed; this will make it possible to raise the volume of housing construction on kolkhozes and sovkhoses by the contract method to between 100,000 and 120,000 square meters per year. This will help to speed up the resolution of one of the most vital social problems facing Siberian villages.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

METHODS FOR INCREASING CAPITAL INVESTMENT EFFECTIVENESS

Moscow STROITEL'NYYE MATERIALY in Russian No 10, Oct 79 pp 2-5

[Article by M. D. Vorobievskiy, Deputy Minister of the USSR Construction Materials Industry: "Basic Approaches for Improving Capital Investment Effectiveness in Developing the Construction Materials Industry"]

[Text] In a report to the 25th Party Congress the CPSU Central Committee General Secretary and Chairman of the USSR Supreme Soviet, Leonid Il'ich Brezhnev said: "The emphasis of all sectors of the economy and the work of every ministry and enterprise for a decisive improvement in efficiency and quality, comrades, is now most important."

While carrying out the decisions of the 25th Congress and subsequent CPSU Central Committee Plenums and the directions and recommendations contained in Leonid Il'ich Brezhnev's speeches the Soviet people, under the Communist Party's guidance, have achieved huge new successes in the post-Congress years in developing the economy and in improving the living standard of the Soviet people.

The party and government constantly give much attention to the development of the industries that manufacture construction materials, structures and articles. The volume of production in this sector grew by a factor of 2.5 in comparison with 1965 and by 165 percent in comparison with 1970. Labor productivity grew by 44 percent for the years between 1971-1975 and the three years of the 10th Five-Year Plan; profits increased by a factor of 1.6 and reached approximately 2.5 billion rubles.

In recent years new technology has been successfully introduced: a dry method of manufacturing for the cement industry and a two-stage glass formation process for the glass industry; technical reoutfitting for the production of asbestos cement articles is taking place in the pipe and other subsectors

The quality of manufactured materials and articles has improved. A complex program for improving the quality of products is being successfully introduced at many enterprises. In 1978 alone 1,228 articles and materials received the State Seal of Quality.

The production of new and progressive types of materials and articles has increased: quick setting cement, architectural-construction articles made of glass, large-scale asbestos cement sheets for walls and roofs, long asbestos cement pipes, glass pipes, stelo-ruberoid, steel reinforced concrete pressure pipes, colored decorative tiles, etc.

The successes of the construction materials industry in satisfying the needs of the economy, and most of all capital construction for high-quality efficient items and articles was accomplished mainly by significant volumes of capital investments for the development of this industry. Between 1971-1978 alone about 14 billion rubles were invested in this industry, of which approximately 62 percent was assimilated by the system of the USSR Ministry of the Construction Materials Industry.

Basic production funds that exceeded 10 billion rubles were put into use for the period 1971-1977. Production capacities of 26 million tons of cement, 1 million tons of asbestos, 1.391 million units of slate tile, and 34.3 million square meters of window glass were put into operation. In addition production capacities of 6.6 million tons of cement, 749 million units of slate tile, 124 million square meters of pliable roofing, and 204,000 tons of asbestos were put into operation by using organizational technical measures.

At present more than 50 percent of the operating basic funds--these are new funds which were allocated after 1966 and one-fifth of all funds in use--are funds which were put into use during the 9th Five-Year Plan. Twenty-five to 30 percent of all the cement, slate, prefabricated reinforced steel concrete and window glass is being produced with these new capacities.

Capital investments are primarily directed to the subsectors that produce articles and items that directly aid in the industrialization of capital construction. Whereas the portion of the total volume of the basic funds that were allocated in 1965 for such subsectors comprised 46 percent, in 1978 it surpassed 57 percent.

The achievements of the industries, however, could have been much more significant if all of the reserves that improve production efficiency would have been put into full operation, most of all the reserves related to improving the use of capital investments from basic funds which are in use and which have been reallocated. The time period for capital investment returns calculated in accordance with the Typical Method for Profit Growth is 10 to 11 years as opposed to the standard 8.3 years.

The duration for erecting many production sites and for reaching the projected technical economic indices exceeds the established standard by a factor of 1.5 to 2; the volume of incompleting construction work is increasing; increases in the estimated cost of construction were not able to be prevented. The tendency towards a lower level of returned funds has not been overcome; the insufficient level of the efficiency in the basic funds which have been reallocated played an important role here. In the final analysis all of this led to a decrease in the rate of growth of manufactured products, labor productivity and profits for the industries.

As an analysis shows such a situation may be explained by a number of causes:

--non-fulfillment of the planned tasks of putting production capacities and basic funds into operation by the contract organizations, the long duration of construction for the industries' projects that significantly exceeded the standard caused mainly by deficiencies in organizing construction production;

--an insufficient technical level of technological equipment, production, durability and other technical-economic conditions which often do not meet modern needs, the absence of certain types of equipment especially for labor-consuming operations such as packing and sorting as well as complete transportation equipment;

--an increase in the price of equipment which in many cases surpasses the increase in productivity attributed to it and as a result when replacing outdated work tools at operating enterprises the fund returns often decrease;

--the slow assimilation of designed capacities and technical-economic indices resulting from a great number of construction imperfections and structural defects in the basic technological redistribution, design flaws, insufficiently qualified staffs and a low level of production organization;

--a lag in exploiting and in putting the achievements of scientific-technical progress into production, principally new technology and equipment;

--the slow rate of expanding the scale of renovation, technical reoutfitting and reconstruction for the industry's operating enterprises.

Appearing at the 18th Komsomol Congress, L. I. Brezhnev named capital construction as a decisive part of the struggle for efficiency and quality in our economy. This is why it is exceptionally important and urgent to concentrate our attention on the basic approaches for improving capital investment effectiveness and to reevaluate the ways of realizing the existing reserves in this matter.

An analysis of capital construction practices in the construction materials industry provides a basis for affirming that the basic approaches for increasing the effectiveness of the national economy's capital investments are by improving the geographical distribution of the industry's enterprises; expanding the scale of technical reoutfitting and reconstruction; accelerating the rate of scientific-technical progress and the introduction of its achievements into production; lowering the estimated cost of construction; decreasing the duration of constructing production sites and assimilating their technical economic indices; concentrating capital investments and decreasing the volume of incompleting construction above the norm; and by using the production structure, interchangeable materials and constructed items as advantageously as possible.

An optimum location for the enterprises of the construction materials industry is a necessary condition for improving the effectiveness of the economy's capital expenditures. While substantiating the urgency of such organization it should be remembered that the transportation portion of the cost of production for the industry's "business" fluctuates between 30 and 90 percent. If the specific proportion of the construction materials industry's production comprises only 6 percent of the total volume of all production for industries and agriculture, then the total volume of freight which is transported by all types of vehicles approaches 25 percent.

In addition it is well known that optimum plans have not been developed for a significant number of subsectors and for a significant amount of the construction materials industry's production. This is related most of all to local construction materials exactly where optimum calculations are especially needed.

Complex optimum plans are practically non-existent for developing the construction materials industry in major regions, economic regions and especially new regions based on their growth potential. As a result it is not always possible to quickly establish the production of construction materials, especially local materials, in new rapidly developing regions. Finally it must be said that the quality of many calculations for the most favorable conditions also do not completely meet modern needs.

Thus to improve the location of the enterprises of the construction materials industry, one of the most important approaches for increasing the effectiveness of capital investments in the industry, three groups of problems require solutions.

The first is to include optimum calculations for all subsectors and production by the construction materials industry and most of all for local materials.

The second is to devise optimum plans for the development and location of groups of interrelated industries. Devising complex optimum plans for developing the industry in major economic regions and territorial production complexes is also necessary.

The third is to further improve the methods for making optimum calculations which will make it possible to substantially improve their quality and the accuracy of the results.

Solutions to these problems will make it possible to accomplish the main task--to devise long and medium range plans for capital investments to develop all subsectors of the construction materials industry exclusively on the basis of optimum calculations.

One of the most important approaches for improving the effectiveness of capital investments, the urgency of which is especially increasing at the present stage, is by expanding the scale of technical reoutfitting and reconstruction.

The general conclusion of the experiences of a large number of enterprises which were reconstructed in various different years and an analysis of the projected and actual data testifies to the high technical-economic effectiveness of reconstruction, which is apparent in the sphere of regenerating basic funds as well as in the sphere of their use. In many cases capital investments for reconstruction pay for themselves 2 to 3 times faster than for new construction. Yet despite the obvious technical-economic advantages, reconstruction has not become a chief form for expanding the regeneration of the construction materials industries: during 1976-1978 only about 14 percent of the entire volume of capital expenditures for developing the industry was used for the purpose of reconstruction and about 5 percent for technical re-outfitting. Approximately the same situation is taking shape during the current five-year plan.

The insufficient level of reconstruction and technical reoutfitting is due to a number of objective causes, among them being the need to direct considerable efforts to complete construction which has already been started, to liquidate construction above the norms which have been accumulating, and also to improve the industries in new underdeveloped regions where the growth of an industry is based mainly on the creation of new enterprises.

However, the most important one consists of the existence of a number of organizational-technical and economic factors, the effects of which result in an artificially limited work potential for reconstruction and which do not achieve the planned economic efficiency in a number of instances: a decrease in certain capital investments, a decrease in the time period for construction and development, etc.

Meanwhile the work of VIIESM and a number of the industry's institutes shows that real and significant potential exist for expanding the scale of reconstruction and technical reoutfitting.

Reconstruction was projected to be accomplished at 30 plants in the cement industry, for example, which would make it possible to derive an increase in capacity of 5.5 million tons of cement; at 35 enterprises in the asbestos cement industry, which would make it possible to derive an increase in capacity for asbestos cement sheets of 649 million units; at 59 enterprises in the glass industry with an increase in capacity of 12 million square meters of glass, etc.

In order to make use of these reserves it is necessary first of all to develop long-term plans for the technical reoutfitting and reconstruction of operating enterprises in each subsector and for the ministry as a whole. Material, labor and financial resource requirements should be determined in these plans as well as calculations of their composite economic efficiency.

It is expedient to work out the technical reoutfitting and reconstruction plans in the form of long and medium range investment programs for the subsectors which would make it possible to concentrate resources to the maximum and improve capital investment effectiveness.

For the goal of expanding the scale of reconstruction work it seems expedient to strengthen those that are operating and to create, where required, new construction-assembly organizations that specialize in carrying out the re-outfitting and reconstruction of medium and small enterprises, combining, where it is expedient, reconstruction work with ongoing capital repairs for large plants.

It is expedient to establish favorable policies in generating and using funds for material stimulation for the enterprises that act on their own initiative to carry out technical reoutfitting and reconstruction work with their own labor forces.

An important element in strengthening the material base for reconstruction work is a solution to the problem of their designed maintenance. As practice shows, in a number of cases designers do not consider the inevitability of an enterprise's future reconstruction. Finally the design organizations also do not have the reserves to contend with the inquiries of enterprises who act on their own initiative to carry out reconstruction work.

In planning capital investments it is necessary to give preference to the reconstruction and technical reoutfitting of enterprises more decisively and persistently. Considering the huge amount of anticipatory work--for the large number of construction projects which have been started--it is apparently necessary to suspend a number of investment programs and to cut down the number of construction projects in order to reduce the volume of allotted capital investments; this will be more economically expedient than to carry out construction on a "broad front" while incompleting construction builds up from year to year.

Elimination of the above deficiencies is an important and pressing problem.

The most important approach for improving capital investment effectiveness is to increase the rate of scientific-technical progress and of putting these achievements into production.

The creation and introduction of principally new technologies and powerful highly productive equipment--this is what ensures a fundamental improvement in all technical-economic indices, including capital investment efficiency indices.

Interesting developments in new high-speed technologies are known for the asbestos cement, glass, ceramic and other subsectors. However, the practical application of many of them is still very far off for they are put into practice extremely slowly. On the whole it should be stated that in a majority of subsectors in the construction materials industry, despite the availability and introduction of many technical innovations, developments of principally new techniques or technology which would provide a revolutionary improvement in the technical economic indices and a decrease in the level of certain capital investments are either inadequate or completely non-existent.

The problem of creating and introducing new highly productive equipment is exceptionally important.

Quite a few examples may be given for developing and introducing into practice new equipment in all the subindustries of the construction materials industry. However, a number of pieces of equipment are manufactured by machine assembly plants in the country which have low utilization reliability and serious constructive deficiencies for certain component parts and connections.

The basic cause of this complex situation is due to large deficiencies in the work of machine assemblers, chiefly of the Ministry of Construction and Road Building Machinery Industry and their assembly organizations. At the same time it would also be incorrect to relieve the construction materials industry of responsibility. It is obvious that the industry's workers do not set and solve the tasks of creating and putting into serial production the needed machinery and mechanisms with sufficient persistence. Technical problems related to the construction of equipment are not always worked out to the required degree. Specifically, the fact that new equipment may be intended to replace old equipment is not considered and therefore special requirements are needed for determining the size that will make it possible to install them in existing industrial buildings.

Thus, the basic tasks in the area of improving the techniques and technology for the production of construction materials are the creation and introduction of new types of equipment which feature greater individual power, a transition from introducing separate new types of equipment to the creation and introduction of machinery systems and technological lines; a transition from individual to high-speed uninterrupted line production technology that would provide full automation; an unprecedented growth in the amount of automated equipment and the creation of automated plants.

Solutions to these problems require, in our opinion, the development of a complex program to create and introduce new techniques, the heart of the matter being a model for the development of mechanical engineering in the construction materials industry.

Such an important approach in improving capital investment efficiency as a decrease in the estimated cost of construction deserves special attention. An analysis that was conducted by VNIIESM and the industries' institutes makes it possible to single out the following basic reasons for the growth in the estimated cost of construction: an increase in the cost of equipment which surpasses its improved productivity; increased requirements when relating designs to actual construction conditions; the mechanization and automation of production, improving the quality of products and working conditions; increases in the volume of construction in northern and eastern regions of the country; carrying out costly measures to preserve the environment and for regenerating natural resources; improving working conditions and increasing the level of its creative qualities; worsening geological mining and technical mining conditions when developing useful deposits.

Calculations have shown that approximately half of all increases in the cost of construction are due to objective causes. Thus, the task of uncovering and putting inter-industry resources to use in lowering the estimated cost of construction is that much more urgent.

Certainly the most important approach to lowering the estimated cost of construction is by improving production technology, introducing new, more productive types of equipment, and by expanding the scale of reconstruction and technical reoutfitting. But large reserves are available in other areas as well, most of all through an improvement in volumetric-planning and structural decisions and an extensive introduction of efficient materials and especially light structures.

Many specific measures may be cited that ensure an improvement in volumetric-planning decisions on the basis of which the estimated cost of construction is reduced. It is important to emphasize the most important one: reducing the estimate cost of construction requires a comprehensive approach and a transition from independent measures to a system of measures.

Large-scale potential for increasing capital investment effectiveness can be found in reducing the duration of construction and in developing the enterprises and capacities which have become available.

While noting the unquestionable achievements to the construction materials industry in reducing the length of time it takes to put production capacities and basic funds into operation it should be pointed out that the critical task of reducing the duration of construction, resolved by the 25th CPSU Congress, continues to remain extremely urgent for the industry as well as for the entire national economy. On the whole the actual duration of the investment cycle in the construction materials industry is more than double the norm. Such a situation is taking shape in the majority of subsectors.

The basic reason for construction delays is due to unpreparedness on the part of construction organizations to complete the necessary volume of work. It would be expedient to determine the preparation period--2 to 3 years (depending on the estimated cost of construction)--in the title list of new construction jobs and also specify the amount of construction that is necessary during this period for housing units, cultural-service projects and industrial bases. Along with this it is necessary to increase the responsibility of the contractor, client, design institute and equipment supplier. The question of material responsibility by requiring compensation for the losses sustained due to a disruption in the time period for putting sites into operation should be reviewed.

Many questions related to improving the work for accelerating the development of production capacities which are put back into operation require further working out. Thus, according to the data, the status as of 1 January 1979 is that 96.1 percent of the established capacities for the production of cement are being used, for slate--86.5 percent, for asbestos--81.2 percent, for flexible roofing--92 percent, for window glass--93.6 percent, for ceramic tile--96.4 percent, for clay bricks--92 percent, and for nonmetallic materials--88 percent.

The basic causes for the delay in putting production capacities to use are the lack of coordination between the individual process stages in the technology for producing articles which makes up a significant portion of the causes of slow development of capacities; poor staff qualifications, unreliable machinery and the insufficient accuracy of geological surveys for raw materials.

For the purpose of eliminating the situation which has been created it is necessary to add accurate initial geological survey data when designing new and reconstructed enterprises; to improve the reliability of technological equipment manufactured by machinery assemblymen and to increase the volume of spare parts production; to train qualified staff before beginning work; to plan capital investments for the construction of enterprises jointly with construction production as well as with housing and social-cultural construction lead work that is related to the latter.

It is necessary to increase the responsibility of design institutes to put designed capacities into use on time, to achieve an improvement in the quality of designs and the elimination of design errors.

VNIIESM should prepare a systematic basis for determining the production capacities of enterprises and subsectors and scientific-research and design institutes must develop a nomenclature for the optimum capacities of each industry.

Significant potential for increasing capital investment effectiveness is contained in expanding the use of waste products from the sectors of industry and rock that is excavated during the process of extracting other raw materials for the production of construction materials and articles. Slag, ashes, rock extracted by mining enterprises, etc. are used more often in our country than abroad; however, the possibilities for further utilizing the above products for production are indeed unlimited.

In this regard it is already necessary in the next two years to develop a comprehensive program for making use of waste products from other sectors of industry to produce construction materials.

Such a program must include a determination of the technical possibilities for using all of the various types of waste products, a determination of the economically expedient possibilities for utilizing the waste products, the development of a unified program for new construction and for the transition of operating enterprises of the industry to the use of waste products along with the required technical economic base, the development of proposals for improving the national economic planning of waste products for the production of construction materials and articles while considering the interests of the sectors and clients in the construction materials industry.

Thus, significant potential within the sectors of the construction materials industry is available for increasing capital investment effectiveness. The faster and more completely that these are put into operation the more perceptible their effect on improving the technical-economic indices will prove to be.

The role of science in accomplishing technical progress is great. During the present period--as labeled by the party, a period for expanding the struggle to improve the efficiency and quality of labor--the role of the economic sciences is especially great. Their successes are undisputed. However, many problems relating to the economics of the construction materials industry have still not been solved. Such problems as establishing a log for calculating the absolute effectiveness of capital investments has not been worked out. The method which is being developed to determine the magnitude of the coefficient for adducing capital investments merits attention, which has great significance in improving the accuracy of calculations with the option of varying production for interchangeable materials by considering their durability. A systematic basis for reconstruction and technical reoutfitting has not been sufficiently worked out.

Several problems could still be named but one is clear: the development of a theory for capital investment efficiency that considers the specifics of the construction materials industry is the most important and urgent task. It is necessary for VNIIESM, scientific research and design institutes to think through more deeply the scientific research topics in the field of economics and to strengthen the subdivisions that study capital investment effectiveness.

In conclusion it should be emphasized once again that accomplishing the party decision of increasing capital investment effectiveness is only possible based on a comprehensive approach that includes all facets of and all participants in the investment process. This means that it is necessary to transfer from separate, even if they are important, measures to the creation of an invariable expedient system for increasing capital investment effectiveness and on this basis the effectiveness of all public production in the construction materials industry.

The CPSU Central Committee and USSR Council of Ministers' Decree, "Concerning the Improvement in Planning and Strengthening the Operations of the Management Mechanism to Improve Production Efficiency and the Quality of Work" defines measures to improve capital investment effectiveness and accelerate the process of putting capacities into operation. The Ministry is developing and carrying out measures to accomplish this.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

CONSTRUCTION MATERIALS INDUSTRY PAVILION OPENS IN MOSCOW

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[Article: "Review of Moscow's Construction Materials Industries"]

[Text] A new pavilion was opened at the USSR VDNKh [Exhibition of the Achievements of the National Economy]. The achievements and long term outlook for the growth of the Moscow construction materials industry under the Glavmospromstroymaterialy [Main Moscow Construction Materials Industry] system are on display inside. In this issue, an article that has been prepared by the editorial office in collaboration with industry workers and the USSR Gosstroy is being published about the new exposition and also about the knowledge which has been gained by a number of Moscow enterprises.

More than 100 enterprises and organizations, where over 80,000 people work, comprise Glavmospromstroymaterialy, the largest industrial combine in the country. The combination of industrial enterprises, scientific research institutes and design organizations with machine-assembly and mechanical-repair shops makes it possible to successfully accomplish specialization, to introduce the achievements of scientific-technical progress and to ensure high technical-economic production indices.

The exhibition graphically shows the significant contribution of Moscow industries in carrying out the program of construction and reconstruction of our homeland's capital. It is sufficient to say that the main board's enterprises annually provide materials, articles and assembled items for the construction of housing units that have a total area of 5 million square meters, 32 schools, 85 kindergartens, 20 medical institutions and 12,000 square meters of industrial buildings.

Glavmospromstroymaterialy has five management departments which organizationally unite the sectors of the industry: fully prefabricated housing construction and prefabricated steel reinforced concrete; ceramic and adhesive materials; synthetic, finish and thermal-insulating materials; woodworking; non-metallic materials.

The leading sector of the Moscow construction industry is the fully prefabricated housing construction and prefabricated steel reinforced concrete industry. More than 80 percent of all of the prefabricated steel reinforced concrete that is required by construction jobs in the capital--the total volume being about 5 million cubic meters--is being produced in the main board's system. In recent years a new nomenclature has been worked out according to more uniform specifications for items that are more completely prefabricated and used to erect housing, public and industrial buildings.

The exposition's exhibits familiarizes one with the introduction of new techniques at prefabricated steel reinforced concrete enterprises as well as with the large amount of work that is going on to reduce the amount of materials needed to make products and to economize on the amount of expenses needed for fuel and energy resources.

The ceramic wall and decorative materials enterprises are the basic suppliers of construction ceramics at Moscow construction jobs. Annually 7,600,000 square meters of ceramic tile are produced on 32 modern automated assembly lines.

The Kuchin combine for ceramic decorative materials, which has received the Order of the Red Banner of Labor, produces high quality ceramic tiles of various sizes and for various purposes, facade bricks and other items. More than 17 percent of all products have been certified to be in the highest category of quality. The combine's collective achieved such results by introducing new technological processes, by modernizing assembly lines and by introducing a complex system for product quality management.

The Dedov ceramic combine produces high quality ceramic tiles for covering the exterior walls of buildings, underground passageways and other surfaces. A wide variety of architectural-artistic ceramic facade tiles with a glazed surface are among the items produced.

Woodworking enterprises manufacture door and window sections, elevator cars, movable partitions, school furniture, parquet tiles, and other items. This industry is broadly represented at the exhibition.

Synthetic, finish, decorative and thermal insulating materials, which were produced by Moscow enterprises in more than 70 varieties, were given a prominent place in the exposition. Under the main board's system 20 million square meters of polyvinyl chloride film, 14 million square meters of laminated plastic, 15 million square meters of linoleum, 3 million square meters of gypsum drywall and porous gypsum wallboard, 7.2 million square meters of decorative ceiling tiles, and 45 tons of paints, enamel and pneumatic sprayers are manufactured annually.

A large portion of these products are produced at the Stroyplastmass [Construction Plastics] production enterprise's plants whose collective carries on much work to master the production of new efficient materials. A great variety of rug coverings for floors are on display at the exposition including new products--smooth or raised pile rug coverings with spongy backing and without it.

The Stroyplastmass combine's thermal-insulation and waterproofing finish materials and articles are distinguished for their high quality; 29 percent of all products bear the State Seal of Quality.

A number of new efficient materials are on display at the Mosasboter-mokombinat [Moscow Thermal Asbestos Combine]. Among them are large-size compressed and non-compressed asbestos cement sheets that are designed for manufacturing wall panels, tile coverings, partitions and toilet partitions, and for the installation of transportation tunnels, ventilating shafts, suspended ceilings and other items for construction as well as for finishing and surfacing housing, public and industrial buildings.

Asbestos cement panels, finished with decorative laminated plastic, for partitions and for finishing the interior walls of buildings are in great demand in civil and industrial construction. Various decorative coverings resemble expensive types of wood, marble, malachite, etc. The panels are manufactured with a high level of plant preparation.

The expertise of Glavmospromstroymaterialy's non-metallic industry enterprises are demonstrated at the exhibition, particularly of the Vyazem mining-enrichment combine which has achieved fine results in manufacturing high quality products. The fractionation and washing of crushed stone and gravel and the enrichment of sand has been fine-tuned here, which made it possible to certify 48 percent of all products as being in the highest category of quality. Based on this year's results of an all-union competition-review for the best quality of construction during the 10th Five-Year Plan, the Vyazem mining enrichment combine was the most outstanding of the main board's 14 enterprises.

The products of the Moscow stone working combine are on display at the exposition: decorative filed and polished tiles made of tufa, filed and milled marble tiles, mosaic floor tiles and a number of other materials.

The combine manufactures up to 600,000 square meters of articles per year and complements the construction of many unique buildings in the capital. The combine's products were used to surface the State Art Gallery building, the "Rossiya" and "Moskva" hotels, the Soviet Union Telegraph Agency, and a number of Olympic structures: the press center, the hotel complex in Izmaylov, etc.

Many other Glavmospromstroymaterialy enterprises are making significant contributions in fulfilling the construction work program for the 1980 Olympics. Their products are being supplied to 246 Olympic projects. The construction of the Olympic complex is one of the factors in realizing the general plan of developing the capital and will aid in transforming Moscow into a model communist city.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

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MINISTER OF INDUSTRIAL CONSTRUCTION COMMENTS ON ECONOMIC EXPERIMENT

Moscow EKONOMIKA STROITEL'STVA in Russian No 11, Nov 79 pp 11-14

[Interview with Belorussian Minister of Industrial Construction
I.M. Mozolyako]

[Text] As is well known, the decree recently adopted by the CPSU Central Committee and the USSR Council of Ministers, entitled "Improvements in Planning and Intensification of the Effect of the Economic Mechanism on Raising Production Efficiency and the Quality of Work," is based upon leading production experience and upon experiments carried out with new managerial methods. Many difficulties can be avoided and planned goals can be achieved more rapidly if the operational results of those ministries and departments which were the first to commence reorganizing their production activities are taken into account.

The Editorial Board of the journal EKONOMIKA STROITEL'STVA asked the Minister of Industrial Construction for the Belorussian SSR, I.M. Mozolyako, to discuss the experience accumulated by the ministry over a period of 4 years under the conditions of the economic experiment.

[Question] As already mentioned repeatedly, many difficulties of the experiment, including those which arose during a correspondence discussion of the problems of the experiment (journal EKONOMIKA STROITEL'STVA, 1978, Nos. 5-10), were caused not only by the novel nature of the work but also by shortcomings in planning. It was stipulated in the decree that, commencing with the Eleventh Five-Year Plan, the basis for planning the work of contractual organizations would be a stable five-year plan for operations, one that would be in balance with the material resources, the technological and power engineering equipment, with labor and financial resources and also with the capabilities of the construction-installation organizations.

In your opinion, what form should such a plan take? What factors must be considered during the development of five-year and annual plans?

[Answer] First of all, I wish to focus attention on the fact that the adoption of the principles of the Belorussian experiment as the basis for developing measures for improving capital construction by no means signifies that the process of mastering the economic mechanism has already been completed. Life does not stand still and operational practice does not allow us to remain content with that which has already been achieved. Rather, we must continue our efforts and constantly improve the quality of the work and the methods employed for experimentation.

With regard to the formation of a plan for contractual work, it is our opinion that it must take into account the following.

The experience of our ministry indicates that USSR Gosplan, when planning capital investments for a five-year plan or for a year, must balance such investments against the capabilities of the construction organizations. This becomes particularly important as labor resources become more limited in nature.

Experience has shown that strong capital investment planning and the assignment of work volumes to contractual organizations which exceed their capabilities invariably lead to a disruption in the schedules for placing projects in operation and to an increase in the volume of unfinished construction production.

Certainly, the task of balancing a plan is complicated work. It requires orderly processing at various levels of planning. Unfortunately, although several methods exist at the present time for determining the productive capabilities of construction organizations, not one of them has as yet been approved.

When planning capital investments, special importance is attached to taking into account still another circumstance -- the need for ensuring a correct ratio between the volume of marketable construction output and the volume of unfinished construction production.

As is known, in order to ensure rhythmic work on the part of the contractual organizations, a stockpile is required that will make it possible to steadily issue a maximum amount of marketable construction output. Moreover, we have in mind here not just one construction project but rather a construction administration, a trust, an association or a ministry. A successful solution for this problem requires the development of a methodology for planning the volumes of unfinished production work for an organization as a whole.

The importance of the above-mentioned facts is convincingly borne out by the experience of the Ministry of Industrial Construction for the Belorussian SSR.

For example, our estimates indicate that the ministry's capability for 1979 is 970 million rubles worth of construction-installation work. For an actual

volume of unfinished construction production work computed at the beginning of the year of 700 million rubles and a computed volume at the end of the year of 784 million rubles, the volume of marketable construction output must be 897 million rubles. However, a volume of marketable construction output of 996 million rubles was approved for the ministry for 1979. As a result the volume of unfinished construction production will be lower this year than the normative amount and the volume of marketable construction output for next year will decrease.

It is necessary to point out as false the existing opinion that an inflated plan stimulates the contractual organizations into carrying out great volumes of work. To the contrary, we are convinced based upon our own experience that an unrealistic plan tends to disorganize production, disrupt the prescribed work tempo and it hinders maximum use of the available potential. Analysis has shown that the overloading of a contractual organization by 10 percent leads to a 1-2 percent reduction in the volume of work performed by that organization, to a lengthening of the construction schedules and to a 10-12 percent increase in the volume of unfinished production work.

Emphasis must be placed upon the special importance attached to the system established in conformity with the decree: commencing in 1981, the plans for capital construction will include only those construction projects for which approved planning-estimates documentation and also blueprints for an annual volume of work are available on 1 July of the year preceeding the one being planned.

The absence of the required technical documentation, as borne out by the ministry's experience, deprives the contractors of the possibility of promptly placing their orders for structures and parts or developing plans for engineering preparations in a timely manner. In addition, it delays the composition by the customers of intra-construction title lists and it prolongs the conclusion of agreements, the opening of financing and the extension of loans to the construction organizations, that is, it summons forth a number of negative consequences which in no way promote normal operations (not to mention successful work).

[Question] In your opinion and taking into account the experience of the Ministry of Industrial Construction for the Belorussian SSR, what factors are deserving of attention during the course of preparing the plan for marketable construction output, which is becoming one of the principal indices?

[Answer] Experience has shown that an evaluation of the activities of contractors based upon this index stimulates the production of a maximum amount of finished products. Thus, over a period of 3.5 years, the volume of marketable construction output for our ministry increased an average of 4.5 percent annually, that is, 1.5 times more rapidly than the volume of work.

Our experience has convincingly proven the importance of including the index for marketable construction products in the plans of customers.

The decree obligates the union ministry-customers to plan the production of marketable construction output for their subordinate enterprises and construction projects.

We are of the opinion that USSR Gosplan should approve this index for these same ministry-customers and in the volumes which are approved for the contractual ministries. In this manner the marketable construction output will truly become an effective economic lever, one which will intensify to an equal degree the responsibility of both the contractual ministries and the ministry-customers for the fulfillment of the plans for capital construction.

[Question] As is known, the builders are experiencing great difficulties owing to interruptions in the material-technical supply operations in behalf of the construction projects. A basic method has been set forth in the decree for use in correcting this shortcoming. Orders for the principal technological and power engineering equipment will be issued to the producing-ministries for the entire period of construction and for metal structures -- for no less than 2 years. Moreover, equipment orders issued by USSR Gossnab must remain in effect until they are completely fulfilled. In conformity with the decree, work will be completed in 1981 in connection with the conversion of construction projects included in the state plan over to a system calling for all materials to be supplied through the territorial organs of material-technical supply, based upon orders issued by the contractual organizations and in conformity with their requirements as set forth in the plans and estimates. This system has been employed for some time for supplying the Ministry of Industrial Construction for the Belorussian SSR with the required materials. What conclusions can be drawn from the ministry's experience with regard to the system of material-technical supply?

[Answer] We are of the opinion that the existing system of material-technical supply was developed in a very logical manner. The Ministry of Industrial Construction for the Belorussian SSR covers its own requirements in the USSR Ministry of Industrial Construction and the latter in turn -- in USSR Gosplan. After obtaining funds for material-technical resources from Gosplan, the union ministry allocates an appropriate amount to the republic ministry and transfers it for realization to USSR Gossnab. In the process, however, and for individual types of materials, a large void is created between the requirements determined on the basis of the norms for 1 million rubles worth of construction-installation work and the requirements computed according to the plans and estimates. This void, as experience has shown, amounts to 5-8 percent for metal and 4-6 percent for cement. Moreover, despite the fact that the Ministry of Industrial Construction for the Belorussian SSR should be supplied with resources in keeping with its

requirements, determined on the basis of the plans and estimates, over a period of three and one half years it was undersupplied in the amount of 75,000 tons of rolled metal, 260,000 tons of cement and large quantities of other materials. As a result, roughly 120-150 million rubles worth of construction-installation work was not carried out.

Moreover, the materials obtained were not always released in a timely manner or in the required assortment. For example, owing to a shortage of metal of the required profiles and grades and irregular deliveries of such metal, an over-expenditure of 15,000 tons of steel took place during the three and a half year period in the production of precast reinforced concrete alone.

Irregular deliveries of metal to the precast reinforced concrete enterprises produces a situation wherein the construction projects are not supplied with structures and products in a timely manner and the plan for placing projects in operation is thus disrupted. Moreover, in those instances where the industrial enterprises of the ministry specialize in the production of definite types of reinforced concrete structures, the irregular delivery of the required metal profiles, notwithstanding their replacement, leads to the incomplete production of structures and to the formation of above-normal surpluses at both the plants and the construction projects.

A similar situation developed in the case of deliveries of cement, pipe and other materials.

Difficulties arise in connection with material-technical support owing to the fact that the requirements of the Ministry of Industrial Construction for the Belorussian SSR for material resources are covered by one organ -- USSR Ministry of Industrial Construction and it is supplied with resources by another organ -- USSR Gosstnab. It is our opinion that improvements should be carried out in this complicated system.

[Question] In what manner will the operational practice of the ministry be affected by the conditions of complete self-support? In your opinion, what factors must be taken into account by those who follow you?

[Answer] Under the conditions imposed by a system of complete self-support, the basic consideration will once again be a plan. As is known, the ministry obtains profit when the plan is carried out. It is used for covering expenditures, developing production and for awarding incentives to collectives for conscientious labor. Non-fulfillment of the plan results in the appearance of a number of undesirable consequences. As we have already mentioned, a plan can be fulfilled if it is realistic and if it is balanced in terms of all of its indices.

Because of a lack of balance in the 1978 plan with regard to the capabilities of the construction organizations, material-technical resources and the equipment supplied by the customers and also owing to shortcomings

in the activities of the ministry itself, it failed to receive 21.1 million rubles of balance profit in construction and 10.8 million rubles in industry. Moreover, the plan for unrealized profit was also under-fulfilled by 12.7 million rubles. Thus the ministry failed to obtain 44.6 million rubles. At the same time, contributions had to be made to the budget (35-40 million rubles annually), funds had to be invested in the development of the internal production base and in the maintenance of childrens' pre-school institutes, young pioneer camps, dormitory facilities and dwellings, that is, urgent expenditures were required. Not having obtained its planned profit, the ministry was forced into using a portion of its own working capital. As a result, a working capital deficit of 43.5 million rubles, or 30 percent of the overall amount, was formed. Under these conditions and in the interest of not disrupting the construction operations, it became necessary to augment the working capital using funds intended for use as economic incentives (13.4 million rubles were expended). However, even these measures did not create a fully stable financial situation for the contractual organizations.

Taking all of the above facts into consideration, it is our opinion that improvements should ideally be implemented in the system employed for the formation and utilization of profit.

[Question] In your opinion, has the credit system for the financing of unfinished construction production, directed towards the rapid placing in operation of projects, proven its worth in actual practice?

[Answer] The ability to obtain bank loans has enabled the builders to cover their expenditures for unfinished production in a complete and timely manner. The raised percentages which must be paid when the placing in operation of a project is delayed serve to stimulate greater activity in the interest of avoiding such payments. However, these percentages are too high and they constitute a heavy burden for the contractual organizations. It is sufficient to state that during a period of 3 years approximately 10 million rubles (6 percent of the balance profit) were paid out in the form of such raised percentages. Moreover, the builders sustained these losses mainly owing to the fact that the customers did not provide the construction projects with the required equipment and technical documentation in a timely manner.

The recovery of losses from the customers, which the builders are entitled to do, as a rule is a very lengthy procedure and one which produces very negligible results.

For example, Trust No. 6 of the Belorussian Ministry of Industrial Construction did not ensure the placing in operation of the second phase of the Mozyr' Petroleum Refinement Plant owing to the fact that the customer failed to supply the required equipment in 1977.

Following claims and suits which stretched out for a period of one and a half years, the trust succeeded in recovering approximately 400,000 rubles from the customer as reimbursement for the losses sustained. Actually the trust lost 500,000 rubles of profit, 296,000 rubles from its funds for economic incentives and 400,000 rubles in the form of bonuses it would have received for placing projects in operation. In addition, it sustained an over-expenditure of its wage fund amounting to 586,000 rubles.

The decree by the party and government called for greater responsibility to be displayed by all those participating in construction production work, with regard to the timely placing in operation of projects. However, in view of the fact that the planned measures will be implemented gradually and that it is impossible to solve all of the problems immediately, we consider it advisable to lower the raised payment for credit.

[Question] From your point of view, what other improvements must be carried out in order to ensure successful implementation of the measures called for in the decree?

[Answer] I would like to discuss briefly two questions.

It can be stated directly that the practice of issuing funds for wages based upon fulfillment of the plan for marketable construction output has not proved its worth. The wage fund is planned based upon the overall volume of construction-installation work, it is paid out to the workers for work carried out and the funds are obtained from a bank depending upon fulfillment of the plan for marketable construction output. If a project is not placed in operation according to schedule, a tremendous over-expenditure of the wage fund occurs immediately, even though there is actually no over-expenditure in terms of the volume of work carried out.

Prior to converting over to planning the wage fund, it is our opinion that funds should be issued depending upon fulfillment of the plan for construction-installation work.

There is still one other factor. Great changes have taken place in the estimated prices and this has brought about an increase in the wholesale prices for construction materials, a change in the transport plans and in the conditions for transporting the materials and so forth. As a result, the actual expenditures of the contractual organizations are not being covered by the funds stipulated in the estimates. This is exerting a very adverse effect on the results of the production activities and it is undermining the principles of economic accountability. In view of the fact that the new estimated prices will be introduced into operations no earlier than 1983, we considered it necessary for USSR Gosstroy to develop and introduce during this period of time correctional coefficients for the estimated cost of the construction-installation work, as reimbursement for the expenditures of the contractors who at the present time are receiving no compensation.

In summarizing the above, emphasis should be placed upon the fact that the experiment carried out by the Belorussian Ministry of Industrial Construction proved its vitality. This has been confirmed by the decree of the CPSU Central Committee and the USSR Council of Ministers. We consider our task to be that of henceforth persistently improving the methods for planning construction production and its economic mechanism, in conformity with the instructions handed down by the party and government, and applying a maximum of effort and making maximum use of all opportunities for rapidly placing in operation the projects which we erected.

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CONSTRUCTION, CONSTRUCTION MACHINERY AND BUILDING MATERIALS

WORK OF BELORUSSIAN INSTITUTE OF CONSTRUCTION AND ARCHITECTURE

Minsk SOVETSKAYA BELORUSSIYA in Russian 16 Oct 79 p 2

[Article by I. Mostkov: "Casually Concerning the Principal Factor"]

[Text] The Institute of Construction and Architecture (ISIA) of Gosstroy for the Belorussian SSR is the leading scientific-research institute of the construction industry in the republic and one of its "brain centers." It is here that the appearance of tomorrow's construction projects is determined. New technological methods, unique structures, at times made out of unfamiliar materials, and automatic lines for producing them are developed here. Each success achieved by means of this restless and innovative search program serves to further improve the operational efficiency of enterprises of the construction industry and to raise labor productivity at the construction projects. The research workers are justly proud of their work, their collective and their difficult and very important endeavors.

This pride was evidenced in the summary report of the party bureau -- delivered by the secretary of the party bureau Ya.P. Portyanko -- and in the speeches by the communists, who cited many examples of successful research undertakings and of the extensive introduction into operational practice of projects developed at the institute. The plan for 1978 and for three quarters of 1979 was fulfilled from the standpoint of budgetary and economic agreement considerations. Last year the introduction of the results of completed studies made it possible to realize an economic savings of more than 3.6 million rubles, or almost one half million rubles in excess of the task. Each ruble expended for studies undertaken at the institute produced a savings of 3 rubles and 37 kopecks in construction production -- this was also considerably more than the amount planned. During a year's time the workers at the institute submitted 80 applications and obtained 57 certificates for inventions and they published 59 scientific works.

For the most part, the carrying out of the programs concerned with solving two important republic scientific-technical problems, for which ISIA is the leading organization, is proceeding in a successful manner. One of these

programs, the development and introduction of which is being supported by the newspaper SOVETSKAYA BELORUSSIYA, calls for the creation and introduction of efficient construction structures and mechanized lines for their production, so as to bring about a reduction in materials consumption of up to 20-25 percent and an increase in labor productivity of 1.5 to 2 times.

For example, such works developed at the institute as the production of reinforced concrete rings using the centrifugal rolled metal method, are being employed extensively in operational practice. Equipment has been developed for the production of centrifuged pipe having a diameter of 1000 - 1400 mm. Adjustments are being carried out on lines developed at the institute for the production of interior wall panels, sidewalk slabs and curbstone. A technological line has been introduced into operations for the production of fibre glass accessories for polymer concrete electrolysis vats. For the construction of electric power transmission lines, experimental batches of cross-pieces having fibre glass hardware that does not require insulators are being developed.

Certainly, these and other successes did not come of and by themselves -- a considerable amount of work was carried out by the institute's party organization and board of directors in creating a creative situation in the collective, in concentrating effort in the principal directions and in providing ideological support for the fulfillment of the planned indices.

But in the summary report of the party bureau, the positive operational results of the institute clearly crowded out a critical analysis of the activity of the party organization. It cannot be stated that the reporter generally avoided criticism. No, shortcomings were revealed both in material-technical support for the scientific studies and in the work of a number of public organizations. In the case of the principal tasks of the collective, mention was made only of the themes the development of which is being neglected by the institute and the conclusion was drawn that the board of directors and the party organization did not take advantage of all of the opportunities that were available for improving the work of the collective.

What opportunities remained in reserve? Specifically, what should have been done and yet was not accomplished by the party organization? What methods are available for improving the research work being carried out at the institute? Why is it that some studies do not proceed well? The speaker did not furnish answers for these questions.

The reporting meeting at the institute took place only three weeks following the 19th Plenum of the Central Committee of the Communist Party of Belorussia, where a discussion was held on methods for raising the level of research work aimed at accelerating scientific-technical progress. During the Plenum of the Central Committee of the Communist Party of Belorussia,

special attention was given to the problem concerned with raising the effectiveness of this work and strengthening the union between science and production.

It would seem that a fresh example of how questions concerned with the party work of creative collectives should be analyzed, discussed and solved would leave a mark on the course of the reporting party meeting at the institute. But the secretary of the party bureau, after having mentioned the Plenum of the Central Committee of the Communist Party of Belorussia, did not touch upon those aspects of the report delivered before the Plenum by Comrade P.M. Masherov which directly concerned the work of the institute. Meanwhile, in the report delivered by Candidate Member of the Politburo of the CPSU Central Committee and First Secretary of the Central Committee of the Communist Party of Belorussia Comrade P.M. Masherov, it was pointed out in particular that a great amount of work had to be carried out with the aid of science in order to achieve a new quality level for construction work and to counter the degree to which the branch had fallen behind. In addition, emphasis was placed upon the need for "developing and organizing the mass production of efficient structures and materials, particularly in view of the fact that the new innovations in construction work are still not lowering the cost of the projects being erected." These profound conclusions, based upon a thorough analysis of the work being carried out in the branch, should have defined the height and the basic position from which it would be possible to evaluate the activity of a scientific-research collective of a construction nature from a party standpoint.

Naturally, the majority of the speeches delivered by the communists were permeated with concern for further improving the work of the party organization and the entire collective (A.A. Cheche, N.A. Shchennikova, A.S. Krushinskiy, the director of the institute G.P. Shukova and others). But a complete picture of the work and a thorough review of the status of affairs, which should have been included in the report of the party bureau, were not obtained at the meeting. Only individual aspects of the party work were reflected in these speeches. Moreover, it was revealed that the work was not proceeding as smoothly as indeed it could have immediately following the report.

For example, some members of the party bureau actually shunned fulfillment of their obligations. According to Comrade Krushinskiy, the secretary of the party bureau, Ya.P. Portyanko, undertook to carry out the work himself. As a result, the role played by the party organization was clearly inadequate with regard to the carrying out of political educational work; proper leadership was not provided by the party bureaus of the local committees of the professional trade union (there are two of them -- the institute's committee and that for the design-technological bureau). Very few communists are being attracted to the carrying out of public tasks. Serious shortcomings have surfaced in the conduct of exercises within the

system of Marxist-Leninist education. In addition, the council for young scientists is not in operation.

The organization of a most important stage in scientific-research work -- the process of introducing new developments into operations -- was soundly criticized by Communist A.A. Cheche. The introduction of completed developments into operations constitutes a weak link in the activities of the institute, with such work at times dragging out for a period of many years.

The speakers also pointed out that incidents of poor discipline, drunkenness and other violations of the moral norms and law and order are still occurring at the institute. Many shortcomings are being observed in connection with organization of the socialist competition. In summarizing the results of the competition, the value of scientific developments is not being taken fully into account.

The critical comments and specific proposals furnished by the communists and the resolution adopted during the meeting will undoubtedly aid in improving the work of the party organization. However, certain important problems were either overlooked entirely during the meeting or they were analyzed only casually. This included problems which although prompted by the Plenum of the Central Committee of the Communist Party of Belorussia were not mentioned by the speaker. The institute's communists and particularly the party bureau will have to return again to these problems.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

PROPER CARE OF AVAILABLE HOUSING IN CITY OF MINSK STRESSED

Minsk SOVETSKAYA BELORUSSIYA in Russian 21 Oct 79 p 2

[Article by A. Lazaruk, deputy chairman of the Executive Committee of the Minsk Municipal Soviet of People's Deputies: "Our Homes -- We Must Protect Them"]

[Text] By displaying tremendous concern for the consistent implementation of the constitutional rights of Soviet citizens with regard to housing, the Communist Party and Soviet State are devoting constant attention to solving this most important social problem.

During 3 years of the Tenth Five-Year Plan alone, the housing fund of Minsk increased by more than 2 million square meters. Substantial qualitative changes are also being realized. A greater number of multi-story dwellings containing complicated engineering equipment are being erected and improvements are being carried out in the planning of apartments. Today the city's overall area of living space is in excess of 16 million square meters, with 98.6 percent of this figure being equipped with water, sewerage and central heating lines and 86 percent -- with hot water supply.

In addition to maintaining high rates of housing construction, increasing importance is also being attached to the problem of preserving the existing housing fund and improving its operation. A system of continuous planning is proving to be of assistance in solving this problem successfully. On the basis of a long-range five-year plan for contractual work, two-year plans are being prepared annually, with the plan for the first year being a working plan and that for the second year -- a longrange plan. Work has commenced on the development of a complex long-range five-year plan for the capital repair of the housing fund of local soviets during the Eleventh Five-Year Plan. The plans call for complete technical inspections to be carried out on dwellings the condition of which does not meet modern requirements and for the singling out of dwellings located in areas of harmful production efforts for the purpose of subsequent demolition.

The preservation of housing and the trouble-free operation of all housing systems are greatly dependent upon the timely carrying out of high quality

planned maintenance work. In many instances, such work can preclude the need for capital repair work. Today this is forcing us into establishing considerably higher requirements with regard to the carrying out of current repair work and finding new forms for organizing this work.

In 1978, a housing repair-operations association was created in Pervomayskiy Rayon by way of an experiment. It was created based upon the housing administration of the rayon executive committee, its subordinate DU's [house installation] and the sector of the senior producer of RSU [Repair and Construction Administration] work. The operational experience of this association was discussed recently during an expanded session of a technical-economic council of the municipal housing administration, attended by the deputy chairmen of rayon executive committees and by workers attached to the Ministry of Housing and Municipal Services of the Belorussian SSR. A unanimous opinion was expressed: production housing repair-operations associations must be created in all of the city's rayons.

Proper use can be made of the complicated engineering equipment assigned to a modern housing fund only on the basis of the introduction of automatic equipment. The creation of an ODS [ob'yedinennaya dispetcherskaya sistema; joint dispatcher system] within each housing administration will make it possible to raise considerably the efficiency and culture of services being made available to the population. Such an ODS, the first in the republic, has been in operation for a period of 3 years in DU-53 of the Frunzenskiy Rayon Executive Committee. Two more are presently under construction. The plans for the Eleventh Five-Year Plan call for such systems to be placed in operation in a number of housing administrations. The creation of an ODS represents the first step taken (as part of an overall complex of operations) in connection with the creation of an automatic system of control for the housing economy.

Improvements in the housing economy and the rapid and complete introduction of automatic control systems are being hindered to a considerable degree by departmental disorganization. At the present time, housing operations in Minsk are being carried out by more than 60 housing administrations, ZhKO's [communal housing department], ZhKK's [communal housing departments], ZhEK's [housing operation office] of various departments, industrial enterprises and organizations and also by more than 400 cooperatives. The number of service personnel for these organizations almost equals the staff of corresponding organs of local soviets. However, owing to the absence of the required repair bases and skilled personnel, the housing fund of departments and ZhSK's [housing construction cooperative] is being maintained in a worse manner than is the case for the local soviets.

The executive committee of the municipal soviet is undertaking measures to improve the operation and maintenance of ZhSK and departmental dwellings. Towards this end, schedules have been developed and approved for the acceptance of ZhSK dwellings for complete technical services in the housing

administrations of local soviets and for the dwellings of ministries and departments -- on the balance of housing administrations. The rayon executive committees must carry out the plans in a more persistent and consistent manner. At the same time the cooperatives, enterprises and organizations having departmental housing at their disposal must intensify their control over the maintenance of such housing and carry out the required current and capital repair work on the buildings.

A modern dwelling is a complicated engineering installation. As a rule, it is equipped with centralized water and heating supply lines and with gas and electric power. The principal task of housing and municipal services workers is that of preparing all of the life-support sources for dwellings and public buildings, ensuring that they perform in a trouble-free manner and making reserve capabilities available for use in the event of equipment breakdowns or accidents. This involves a great amount of work. Moreover, importance is attached to following a strict regime of thrift and to ensuring the proper use of all types of energy and reducing heat and fuel losses. This requires the development of optimum work regimes for heat-carrying agents, the carrying out of checks on the reliability of pipeline insulation and ensuring that the porches of all dwellings are heated.

This year the problems concerned with preparing for winter and carrying out the repair plans for dwellings, heating systems and the heat and power engineering economy are being controlled in a very strict manner at all levels. In Minsk, these problems were discussed thoroughly back in April during a meeting of the executive committee of the municipal soviet. Measures were outlined for ensuring the conditions required for normal life in the capital during the winter.

Many defects surfaced during the past winter; they were tolerated by the housing and municipal services during the course of preparing for the winter. The appropriate conclusions were drawn and those guilty of having neglected their assigned tasks were punished. At the same time, a complex of measures was approved for preventing a repetition of the blunders and mistakes made last year. Special attention was given to the carrying out of repair work and the installation of heating lines, to the modernization of heating systems and to the elimination of individual and unprofitable local boiler rooms. In the interest of ensuring complete readiness of the heating economy and engineering equipment of dwellings belonging to local soviets of the city and Minskaya Oblast for winter operations, an inspection was announced for the best preparation of the heating economy and the engineering equipment. On the basis of this decree, committees involving the extensive participation of society were created at all levels and the conditions of the inspection were approved. These conditions called for incentive awards to be issued to the winners.

The plans for this year are to be carried out both by newly created and existing municipal repair-construction organizations. The general construction work is being carried out on a centralized basis by the repair-

construction administration for the current repair of the housing fund. It has its own production sectors in all of the rayons. The repair-construction trusts Nos. 1 and 2 are obligated to carry out 400,000 rubles worth of additional work on dwellings of the local soviets.

This year, for the very first time, the preparation of local heating boiler rooms and engineering networks based upon such boiler rooms is being carried out by a newly created production association of boiler room and heating networks. This has made it possible to concentrate the material, technical and human resources for a more efficient carrying out of an entire complex of operations in this complicated economy. Preventive maintenance work on the engineering equipment, the testing of heating terminals and the washing of the heating systems were carried out by those housing administrations having the requisite number of specialists on their staffs. This method served to raise considerably the responsibility of leaders of DU's and it strengthened the service personnel structure specifically at each dwelling.

Whereas dwellings subordinate to the local soviets are being prepared for winter operations in the manner planned, the preparation of departmental housing leaves a great deal to be desired. The work is being carried out in a haphazard and incomplete manner and this is resulting in premature deterioration of the buildings and their engineering systems and this is arousing just complaints on the part of citizens. Thus the residents of dwellings Nos. 41 and 43 of Gribnyy Lane, which belong to the Beltorgtekhnik Combine, dwellings along Leninskiy Avenue which are subordinate to a republic sports base, dwellings Nos. 33 and 35 on Denisovskaya Street and Nos. 20-a, 22 and 26 on Semenova Street (owner -- apartment-operations unit of Minakiy Rayon) have repeatedly requested the party and soviet organs and the editorial boards of newspapers to improve the condition of the dwellings and to ensure normal living conditions in them.

In connection with the preparation of the housing fund and the municipal economy for operations during the cold period of the year, there are no matters of secondary concern and every resident is involved in the work. Indeed the temperature in the apartments and the expenditure of thermal energy are greatly dependent upon how well heated the windows and balcony doors are and upon the readiness of the areas of general use and the heating systems.

For the purpose of mobilizing all efforts for the rapid completion of a complex of operations concerned with winter preparations, the municipal executive committee held a conference with the managers and secretaries of the party organizations of housing administrations and the chairmen of public housing committees. Discussions were held during this conference on the tasks of public formations with regard to the carrying out of extensive explanatory work among the population.

The workers attached to housing-operations and repair-construction organizations and also society as a whole are confronted by large and

complicated tasks requiring a creative approach, a high level of responsibility and strict discipline. It is necessary for each resident -- from the rank and file workers attached to housing administrations to the leaders of administrative elements -- to apply a maximum amount of effort in the interest of ensuring that each apartment is continuously and adequately supplied with water, heat, gas and electric power. There can be no doubt but that extensive participation on the part of the population of Minsk will promote more complete fulfillment of the planned program for preparing the city for winter. The local soviets in the capital are making a considerable contribution towards solving this very important and many-sided task. More than 2,000 of their deputies, 30 permanent committees and 17,000 activists -- this represents our true strength.

Relying upon its aktiv and society as a whole, the municipal executive committee, jointly with the party committees and organizations and economic leaders, is striving in every possible way to convert Minsk into an exemplary communist city. There is a place in this patriotic movement for every resident of Minsk.

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VNIIMONTAZHSPETSSTROY TO HEAD CONSTRUCTION STANDARDIZATION

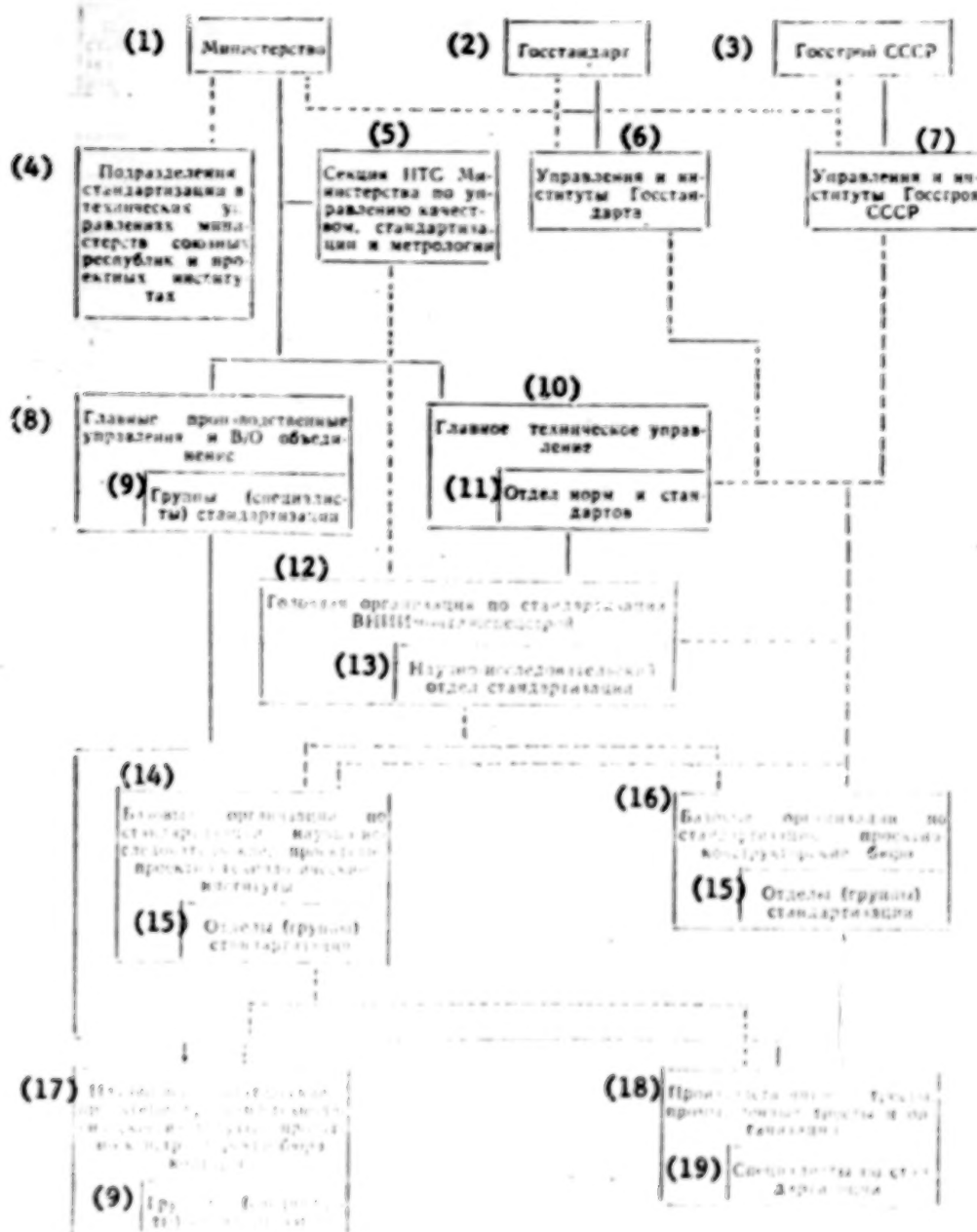
Moscow MONTIAZHNYE I SPETSIAL'NYE RABOTY I STROITEL'STVE in Russian No 10, Oct 79 pp 23-24

[Article by Engineer V. I. Aksenov (Ministry of Installation and Special Construction Work) and Candidate of Technical Sciences V. A. Karasik (All-Union Scientific Research Institute of Installation and Special Construction Work): "Branch Standardization Tasks"]

[Text] Growth in scale, fast tempo and intensification of interrelationships with all other branches of the national economy are characteristic of the present stage of installation production. Under these conditions, the functioning of all links of installation production is impossible without standardization. By establishing a definite procedure and technology of activity and by putting interrelationships among manufacturers, builders and customers into proper order, standardization must become an effective means of management in scientific-technical, production, economic and social life in collectives of the ministry.

In the USSR Minmontazhspetsstroy [Ministry of Installation and Special Construction Work] system, the lead organization called on to ensure resolution of the task set branch standardization of raising the scientific and technical level of normative-technical documentation (NTD) has been confirmed by resolution of the Gosstandart [State Committee for Standards] as the VNIImontazhspetsstroy [All-Union Scientific Research Institute of Installation and Special Construction Work]. The drawing [page following] shows the structure of standardization agencies and services presently operating in the ministry. The "Regulation on Standardization Services in the USSR Minmontazhspetsstroy," including regulations on the lead and base standardization organizations, was prepared by the VNIImontazhspetsstroy and has been approved. In accordance with the regulation, the basic tasks of the lead organization are: scientific-methods coordination and supervision of standardization work; developing basic lines of branch standardization planning and development; working out general normative-technical standardization documents; scientific research and development in the area of standardization; ensuring that indicators and norms set in standards and

Structure of USSR Minmontazhspeystroy Standardization Agencies and Services



———— directly subordinate
 ----- functional links

[Key on page following]

[Key to chart on preceding page:]

1. Ministry
2. Gosstandart
3. USSR Gosstroy
4. Standardization subdivisions in Union republic ministry technical administrations and planning institutes
5. NTO [scientific labor organization] section for quality control, standardization and metrology
6. Gosstandart administrations and institutes
7. USSR Gosstroy administrations and institutes
8. Main production administrations and all-union association
9. Standardization groups (specialists)
10. Main technical administration
11. Department of norms and standards
12. Lead VNIImontazhspeystroy standardization organization
13. Scientific research department of standardization
14. Base standardization organizations: scientific-research, planning and technological planning institutes
15. Standardization departments (groups)
16. Base standardization organizations: planning-design bureaus
17. Scientific-research, planning, technological planning institutes, planning-design bureaus, offices
18. Production trusts, industrial trusts and organizations
19. Standardization specialists

other standardization documentation conform to the demands of scientific and technical progress and to existing legislation; organizing supervision of the introduction of standards and other normative-technical documentation. The development and introduction of quality control systems for installation and special construction work and industrial output is invested in the Kiev branch of the VNIImontazhspeystroy.

The base standardization organizations (BOS) are responsible for standardizing the types of industrial output assigned to them, as well as installation and special construction work assigned to them. The basic tasks of the base organizations are the following: coordinating standardization and typization work done at enterprises, scientific-research, planning and design organizations assigned to the BOS; developing the basic directions of standardization planning and development for the assigned group of output and types of installation and special construction work; developing standards and other normative-technical documents on standardization in conformity with the assigned types of output and installation and special construction work and preparing proposals for reviewing them at the proper times; ensuring that the indicators and norms set in standards and other normative-technical documents for the assigned group of output and type of installation and special construction work conform to the demands of scientific and technical progress and to existing legislation; ensure the introduction of standards for the assigned group of output and type of installation and special construction work and the monitoring of observance of those standards.

In order for both the lead and base organizations to operate successfully, the main administrations should consolidate standardization services which are small and, in a number of instances, not even independent subdivisions. It is also necessary to assign ministry organizations and enterprises to appropriate standardization base organizations subordinate to both the USSR Minmontazhspetsstroy and other ministries and departments as a function of type of installation and special construction work or output produced.

The next step in increasing standardization efficiency and quality is to improve organizational-methods principles and planning. At present, normative-technical documents subject to review and the initiative topics of ministry institutes, organizations and enterprises serve as the base for drawing up ministry standardization plans. There is an observable trend towards considerable annual growth in the amount of NTD, so their demands are not interlinked and often duplicate one another. Continuity is not being fully ensured between the branch standardization plan and the scientific-research and planning-design plans.

Departmental construction norms (VSN), which have been worked out by 33 organizations of the ministry, occupy a large proportion of the NTD's in effect in the branch. At present, they number about 270. Of that, 75 percent was approved more than five years ago and should be checked; 40 percent was approved more than 10 years ago and should obviously be reviewed.

The large amount of responsible work on checking and reviewing VSN's must be entrusted first of all to the lead and base organizations; it must be done quickly and well, based on plans and schedules approved in advance. It is also appropriate to examine the possibility of making certain VSN's standards, as for example, the "Standard Technological Process" type. It is appropriate to create a ministry scientific and technical council section for quality control, standardization and metrology to supervise standardization methods-organization work.

In the 11th Five-Year Plan, standardization work in the ministry will be done on the basis of the broad application of target-program planning, a basic component of which is the development of comprehensive programs for the most important directions and problems. The VNIImontazhspetsstroy has prepared a draft program of standardization in the USSR Minmontazhspetsstroy; it is a list of interlinked problems (assignments) which will, after being approved, be the basis for planning standardization in the ministry.

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